EXPRESSION

✓ Assign value to.

✓ Any STATEMENT base on OPERATION being use.

✓Example:

a = 2

b = b + 1

Z = x + y

x > y

x <= z

OPERATION

1. Mathematical Operation
2. Relational Operation
3. Logical Operation

OPERATION

1. Mathematical Operation

Mathematical Operator:

SYMBOL	EXAMPLE	ANSWER
+	1 + 2	3
-	2 – 1	1
*	2 * 3	6
/	4 / 2	2
%	3 % 2	1

OPERATION

Precedence:

FIRST : ( )

SECOND: * , /, %

THIRD: +, -

Example:

X = 6 – 2 * 3 + 4 / 2

OPERATION

2. Relational Operation

Relational Operator:

SYMBOL	MEANING
= =	Equal to
! =	Not equal to
>	Greater than
<	Less than
> =	Greater than or equal to
< =	Less than or equal to

OPERATION

Use in the comparison statement to get the answer weather TRUE or FALSE

- **Format:**

  variable RelationalOperator variable

- Example:

  a = = b

  a = = 8

  a < 12

OPERATION

3. Logical Operation

Logical Operator:

SYMBOL	MEANING
& &	AND
||	OR
!	NOT

Use in condition statement to combine more than one relational operation

OPERATION

Truth table:

AND (& &)	OR (| |)	NOT (!)
T & & T = T	T | | T = T	! T = F
T & & F = F	T | | F = T	! F = T
F & & T = F	F | | T = T	
F & & F = F	F | | F = F	

OPERATION

- **Format:**

  condition1 LogicalOperator condition2

- Example:

  a = = b && a > 12

  a = = 8 | | a < 11

OPERATION

4. Increment Operation

- Use to add one to the variable

- Format:

  variable++

- same as : variable = variable + 1

- Example:

  A++ → A = A + 1

OPERATION

5. Decrement Operation

- Use to minus one from the variable

- Format:

  variable--

same as : variable = variable - 1

- Example:

  A-- → A = A - 1

OPERATION

EXCERCISE

1. What is the answer of those statement. Define weather the answer is TRUE or FALSE

a. 5 > 10
b. (4 < 40) && (3 < 30)
c. (5 < 50) | | (3 > 30)
d. 31 >= 31
e. 10 < 1000
f. 2 > 5
g. ! (2 > 5)

OPERATION

EXCERCISE

2. What is the output of the following pseudo code fragment?

1. START
2. Input data1 (Assume that data1 is 6)
3. data1 = data1 + 5 * 10
4. data2 = 2 + 4 * 6 / 2
5. data3 = data2 / 4 + (5 – 2)
6. data4 = data3 + 6 * 2
7. data5 = 10 – 4 + 4 * 4
8. Output data1, data2, data3, data4 and data5
9. END

OPERATION

EXCERCISE

What is the value of Counter after control exits the following iteration control structure?

```
1. Counter = 1
2. DOWHILE (Counter <= 100)
3.       a = a + 7
4.       Counter++
   ENDDO
```

OPERATION

EXCERCISE

What is the value of Counter after control exits the following iteration control structure?

```
1. Counter = 1
2. REPEAT
3.       a = a + 7
4.       Counter++
5.  UNTIL (Counter >= 100)
```

OPERATION

EXCERCISE

5. What is the output of the following pseudo code fragment?

```
1. n = 1
2. DOWHILE (n < 3)
3.     print n
4.     n++
   ENDDO
```

OPERATION

EXCERCISE

6. What is the output of the following pseudo code fragment?

```
1. n = 1
2. REPEAT
3.     print n
4.     n++
   UNTIL ( n = = 3 )
```

OPERATION

EXCERCISE

7. If the integer variables x1, x2, and x3 contain the values 10, 3, and 20, respectively, what is the value of the following logical expression:

   x1 < 4 || x2 = = 3 && x1 <= x3

OPERATION

EXCERCISE

8. What is the output of the following pseudo code fragment?

```
1. X = 120
2. Input Y      // Assume user types 30
3. IF ((X > 100) && (Y  = = 30)) THEN
4.    Z = X + Y
   ELSE
5.    Z = X - Y
6.    print X, Y and Z
   ENDIF
```